Discussion: MPNST are a rare sarcoma but more common in patients with NF1 who have malignant transformation of plexiform neuromas. Thoracic metastases are rare and few cases of anesthetic management exist. Patients with NF1 have neurofibromas and neuromas throughout the body, which can obstruct the airway and complicate regional anesthesia. NF1 patients may also present with restrictive lung disease secondary to pulmonary fibrosis and kyphosis. Given these considerations, we used a video laryngoscope and avoided muscle relaxants as a precaution to avoid airway compromise. The use of regional anesthesia was essential to minimize postoperative pain and permit successful extubation.

References:

1. Hirsch NP et al. Neurofibromatosis: clinical presentations and anaesthetic implications. BJA. 2001;86(4):555-564.
2. Boland JM et al. Intrathoracic peripheral nerve sheath tumors-a clinicopathological study of 75 cases. Hum Pathol. 2015;46(3):419-425.

Learning points: Anesthetic management for NF1 should include: careful airway management, the judicious use of muscle relaxants, and the use of regional anesthesia for the resection of a thoracic sarcoma.

07AP02-1
Effect of types of prosthetic valve for transcatheter aortic valve implantation on intraoperative left ventricular end-diastolic pressure

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Background: During tanscatheter aortic valve implantation (TAVI), normalization of left ventricular afterload induced by prosthetic valve deployment is expected to result in rapid improvement of systolic function and consequent improvement in diastolic function. Previously, we reported a rapid increase in the left ventricular end-diastolic pressure (LVEDP) after deployment with a balloon expandable prosthetic valve [1]. In this study, we aimed to determine the effect of types of prosthetic valves for TAVI on the LVEDP.

Methods: This retrospective observational study included patients who had undergoing transfemoral TAVI since May 2016. The patients were classified into two groups by valve type: patients treated with a balloon-expandable valve (group B) and those treated with self-expandable valve (group S). The results of intraoperative LVEDP measurements an intracardiac catheter before and after prosthetic valve deployment were compared between the two groups. In order to eliminate the effect of artic regurgitation on the LVEDP, subanalysis was performed on patients with mild or less aortic regurgitation assessed by echocardiography performed before and/or after valve deployment. Statistical analysis was performed using a nonpaired t test, the Mann Whitney U test and two way analysis of variance. A p value of < 0.05 was considered as significant.

Result: The study sample consisted of 99 patients (group B, 70; group S, 29). The LVEDP significantly increased after deployment in group B (11.4±4.2 to 13.2±5.7 mmHg), but significantly decreased in group S (14.0±6.2 to 13.4±5.4 mmHg). After excluding 36 patients with moderate or greater aortic regurgitation, 63 patients were subanalyzed, in whom the LVEDP also significantly increased after valve deployment in group B (11.2±4.2 to 13.2±5.5 mmHg), but significantly decreased after valve deployment in group S (14.7±5.2 to 12.1±4.1 mmHg).

Conclusion: TAVI with balloon-expandable prosthetic valve may increase the LVEDP compared with that with a self-expandable prosthetic valve.

References:

1. Toyota K.et al. J Anesth. 2016; 30:1051-1055

07AP02-2
Influence of a bolus administration of ephedrine or phenylephrine on cerebral oxygen saturation.

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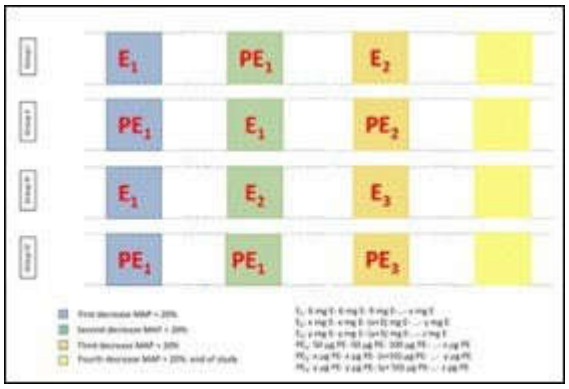
Background and Goal of Study: To maintain systemic perfusion pressure intraoperatively, phenylephrine (PE) and ephedrine (E) are usually the drugs of choice. Yet, the effect of these agents on cerebral blood flow and brain oxygenation is still controversial. Meng et al.[1] reported a negative effect of PE on cerebral tissue oxygen saturation (SctO2) whereas SctO2 remained unaffected with E. In contrast, Pennenkamp et al. [2]observed a significant positive effect of E on SctO2. However, to minimize bias, surgical stimulation should be homogeneous and administration of drugs must be standardized. Therefore, our study assessed the effect of PE and E on SctO2 in patients undergoing percutaneous transluminal angioplasty. A standardized protocol to maintain normotension was used.

Materials and Methods: A randomized four-treatment cross-over trial was applied in 28 patients under BIS-titrated anaesthesia with sevoflurane. Patients were randomized into four different groups (Figure 1). If MAP decreased more than 20% from baseline, incremental doses of PE or E were given in order to return to baseline.SctO2 was measured with near-infrared spectroscopy. SctO2and other physiologic variables were recorded. Linear mixed-modelling was used to assess the effects of PE and E on SctO2.



Results and Discussion: No crossover effect was observed between agents. Following PE, SctO2decreased significantly (-2.1% [-3.2%; -1.1%], p<0.001), whereas no changes were seen with E (0.0% [-1.0%; 1.0%]. The cause and the clinical relevance of the small decrease in SctO2after PE administration is still unknown, but our results indicate that in terms of cerebral oxygenation, E might be preferred.

Conclusion: After bolus administration, PE caused a significant decrease in SctO2, whereas E exerted no changes in SctO2.

References:

1. Meng L et al. Br J Anaesth 2011;107:209-17
2. Pennekamp CWA et al. Br J Anaesth 2012;109:831-3

07AP02-3
Impact of postoperative vasoplegic syndrome after continuous flow Left Ventricular Assist Device implantation on short-term renal function.

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Background and Goal of Study: One of the most innovative medical progress in the treatment of end stage heart failure is the development of continuous flow left ventricular assist devices (cfLVAD). However, the surgical implantation of a cfLVAD is a high-risk procedure and might be complicated by postoperative vasoplegic syndrome (VS), right ventricular failure, renal failure with possible need for renal replacement therapy and mortality. In the current study, we examined whether the occurrence of postoperative VS affects short-term (<6 months) postoperative renal function in patients undergoing cfLVAD implantation.

Materials and Methods: Included were patients scheduled for primary cfLVAD implantation. Patients were classified as vasoplegic if they had the following conditions for at least three consecutive hours during the first 48 hours after ICU arrival: low systemic vascular resistance (SVR <800 dynes/s/cm^{-5}) and/or low mean arterial pressure (MAP <50 mmHg), preserved cardiac index (CI >2.5 liter/minute/m²) and high vasopressor requirements (noradrenaline >200 ng/kg/min or equivalent doses of other vasopressors. Renal function, expressed as glomerular filtration rate (GFR), was measured prior to and at 1, 2, 3 and 6 months after cfLVAD implantation. A generalized mixed model was used to compare baseline GFR measurements between patients with and without VS, as well as their GFR courses over this six month follow up period. Relative risks (RR) were calculated for the association between VS and renal failure, the need of renal replacement therapy and 30-day and one-year all-cause mortality.

Results and discussion: In this retrospective study, 160 patients were included, of which 42 patients (26%) developed postoperative VS. They had a significantly lower GFR before cfLVAD implantation (p=0.007), a different course in renal function after cfLVAD implantation (p<0.0001), a higher relative risk to develop renal failure (RR 3.4, 95% confidence interval (CI) 1.9-6.1), required more often renal replacement therapy (RR: 4.8,CI 2.0-11.4) and died more often (RR: 26.7, CI 10.1-703) compared to patients without postoperative VS.

Conclusion: Our cohort study revealed vasoplegic syndrome being associated with a worse pre-operative renal function, which continues over a six-month period post-cfLVAD implantation compared to non-vasoplegia patients.